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REMARKS

Rejections under 35 U.S.C. § 102

Claims 1, 3, 4, and 8-18 stand rejected under 35 U.S.C. § 102(b) as anticipated or, in the alternative, as obvious over US 6,127,478 to Spohn (Spohn '478) or US 6,284,335 to Spohn (Spohn '335).

Spohn '478 discloses melt-mixed blends of polyamide containing fluoropolymer particles having polar functionality dispersed therein. Spohn '478 does not disclose a pipe or liner comprising a melt-mixed blend of polyamide and at least one grafted fluoropolymer having polar functionality wherein the polyamide is in a continuous matrix and the fluoropolymer is present in a discontinuous phase in the form of a multitude of thin, substantially parallel and overlapping layers of material, as is claimed in the present invention. In fact, Spohn '478 states that:

The polar-grafted fluoropolymer forms a dispersed phase of the melt-mixed blend of the present invention. The melt mixing causes the polar-grafted fluoropolymer to be present as small particles, generally well-dispersed (uniformly dispersed) in the polyamide matrix. *The particles of polar-grafted fluoropolymer are generally spherical in shape, e.g., predominately having a ratio of major/minor dimensions of 2/1 or less.* [Col. 3, line 62 to col. 4, line 2. Emphasis added]

Thus, Spohn '478 discloses blends containing polar-grafted fluoropolymer particles having a generally spherical shape, rather than taking the form of thin, substantially parallel and overlapping layers as used in the present invention. The present invention is believed to be novel over the disclosure of Spohn '478.

Spohn '335 discloses a structure comprising at least a first layer of a melt-mixed blend polyamide containing fluoropolymer particles having polar functionality dispersed therein. Spohn '335 does not does disclose a pipe or liner comprising a melt-mixed blend of polyamide and at least one grafted fluoropolymer having polar functionality wherein the polyamide is in a continuous matrix and the fluoropolymer is present in a discontinuous phase in the form of a multitude of thin, substantially parallel and overlapping layers of material, as is claimed in the present invention. In fact, Spohn '335 has the same disclosure as Spohn '478 and states that:

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The polar-grafted fluoropolymer forms a dispersed phase of the melt-mixed blend of the present invention. The melt mixing causes the polar-grafted fluoropolymer to be present as small particles, generally well-dispersed (uniformly dispersed) in the polyamide matrix. *The particles of polar-grafted fluoropolymer are generally spherical in shape*, e.g., predominately having a ratio of major/minor dimensions of 2/1 or less. [Col. 3, line 63 to col. 4, line 3. Emphasis added]

Thus, Spohn '335 discloses blends containing polar-grafted fluoropolymer particles having a generally spherical shape, rather than taking the form of thin, substantially parallel and overlapping layers as used in the present invention. The present invention is believed to be novel over the disclosure of Spohn '335.

Rejections under 35 U.S.C. § 103

Claims 1-4 and 8-18 stand rejected under 35 U.S.C. § 103(a) as obvious over Spohn '335 or Spohn '478 in view of US 4,444,817 (Subramanian).

Subramanian discloses laminar shaped articles comprising a continuous matrix phase of polyolefin in which a condensation polymer (such as a polyamide) is dispersed as thin, substantially two-dimensional, parallel and overlapping layers of material and wherein an alkylcarboxyl-substituted polyolefin is present between the layers. Spohn '335 and Spohn '478 disclose melt-mixed blends of polyamide containing fluoropolymer particles having polar functionality dispersed therein and structures containing such melt-mixed blends, respectively.

In fact, Spohn '335 and Spohn '478 both state that:

The polar-grafted fluoropolymer forms a dispersed phase of the melt-mixed blend of the present invention. The melt mixing causes the polar-grafted fluoropolymer to be present as small particles, generally well-dispersed (uniformly dispersed) in the polyamide matrix. *The particles of polar-grafted fluoropolymer are generally spherical in shape*, e.g., predominately having a ratio of major/minor dimensions of 2/1 or less. [Col. 3, line 62 to col. 4, line 2 of Spohn '335 and col. 3, line 63 to col. 4, line 3 of Spohn '478. Emphasis added]

In the case of Subramanian, the matrix phase is a polyolefin. The present invention claims a pipe or liner comprising a composition in which the matrix phase is a polyamide. The particles of Spohn '335 and Spohn '478 are generally spherical in shape, rather than taking the form of thin, substantially parallel and overlapping

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layers as used in the present invention. No indication is made in Subramanian that it would be possible to use polyamide as a continuous phase with a grafted fluoropolymer dispersed therein. One skilled in the art would have no indication that it was possible to modify the shape of the discontinuous phase in Spohn '335 or Spohn '478 to be thin and would have had no motivation to combine Subramanian with Spohn '335 or Spohn '478 to arrive at the pipes and liners of the present invention.

Claims 1-4 and 8-18 stand rejected under 35 U.S.C. § 103(a) as obvious over US 5,576,106 (Kerbow) in view Spohn '335. Kerbow discloses a grafted fluoropolymer powder and discloses that *laminates* "having grafted fluoropolymer powder as bonding layer between two other materials" [col. 6, lines 59-60] may be formed from the powder.

The examiner has stated that "Kerbow discloses the recited tube formed of a melt mix blend of polyamide and flat flakes of grafted fluoropolymer of 50 micrometer in thickness, with polar functionality from carboxyl treatment which would create moieties." The applicants have been unable to discover where in Kerbow such a disclosure is made. The use of grafted fluoropolymer powders with polyamides is disclosed in Examples 4, 14, and 15 of Kerbow. In the case of Example 4, grafted ETFE powder was blended with a 6,6-polyamide and compression molded into films. Compression molding is not generally a melt-mixing process and no disclosure was made of a pipe or liner comprising a melt-mixed blend of polyamide and at least one grafted fluoropolymer having polar functionality wherein the polyamide is in a continuous matrix and the fluoropolymer is present in a discontinuous phase in the form of a multitude of thin, substantially parallel and overlapping layers of material, as is claimed in the present invention. In the case of Examples 14 and 15, laminates comprising polyamide and ETFE were made, not melt-mixed blends, as are used in the present invention. Thus, Kerbow does not disclose all the elements of the present invention.

Furthermore, Spohn '335 discloses a structure comprising at least a first layer of a melt-mixed blend polyamide containing fluoropolymer particles having polar functionality dispersed therein. Spohn '335 does not does disclose a pipe or liner comprising a melt-mixed blend of polyamide and at least one grafted fluoropolymer having polar functionality wherein the polyamide is in a continuous matrix and the

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fluoropolymer is present in a discontinuous phase in the form of a multitude of thin, substantially parallel and overlapping layers of material, as is claimed in the present invention. In fact, Spohn '335 states that:

The polar-grafted fluoropolymer forms a dispersed phase of the melt-mixed blend of the present invention. The melt mixing causes the polar-grafted fluoropolymer to be present as small particles, generally well-dispersed (uniformly dispersed) in the polyamide matrix. *The particles of polar-grafted fluoropolymer are generally spherical in shape, e.g., predominately having a ratio of major/minor dimensions of 2/1 or less.* [Col. 3, line 63 to col. 4, line 3. Emphasis added]

Thus, Spohn '335 discloses blends containing polar-grafted fluoropolymer particles having a generally spherical shape, rather than taking the form of thin, substantially parallel and overlapping layers as used in the present invention.

As the elements of the present invention are not disclosed in Kerbow and Spohn '335, even when they are combined, it would not be possible for one of skill in art to combine them to arrive at the present invention, and thus the present claims are believed to be patentable.

Claims 5-7 stand rejected under 35 U.S.C. § 103(a) as obvious over Spohn '335 or Spohn '478 in view of Subramanian as applied to claims 1-4 and 8-18 above and further in view of US 5,716,684 (Stoeppelmann). As argued above, claims 1-4 and 8-18 are believed to be patentable over Spohn '335 or Spohn '478 in view of Subramanian, and thus the applicant believes that claims 5-7 are patentable.

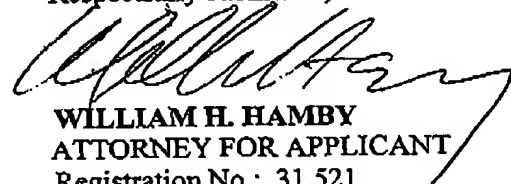
Claims 5-7 stand rejected under 35 U.S.C. § 103(a) as obvious over Kerbow in view of Spohn '335 as applied to claims 1-4 and 8-18 above and further in view of US 5,716,684 (Stoeppelmann). As argued above, claims 1-4 and 8-18 Kerbow in view of Spohn '335, and thus the applicant believes that claims 5-7 are patentable.

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In view of the foregoing, allowance of the above-referenced application is respectfully requested.

Respectfully submitted,



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